
During 1” rain event &
immediately after installation of
tile plug (Pluggy)
(Drained out in less than 6 hours)
June 9, 2004


September 2006


Plant Height
2701
City of Maplewood
Public Works Street Reconstruction Project


Raingarden
w/ Shade Garden Perennials
City of Maplewood
Public Works Street Reconstruction Project


**Burnsville Raingardens**
**Designed by: Barr Engineering**

**Burnsville Raingardens**

**Designed by: Barr Engineering**

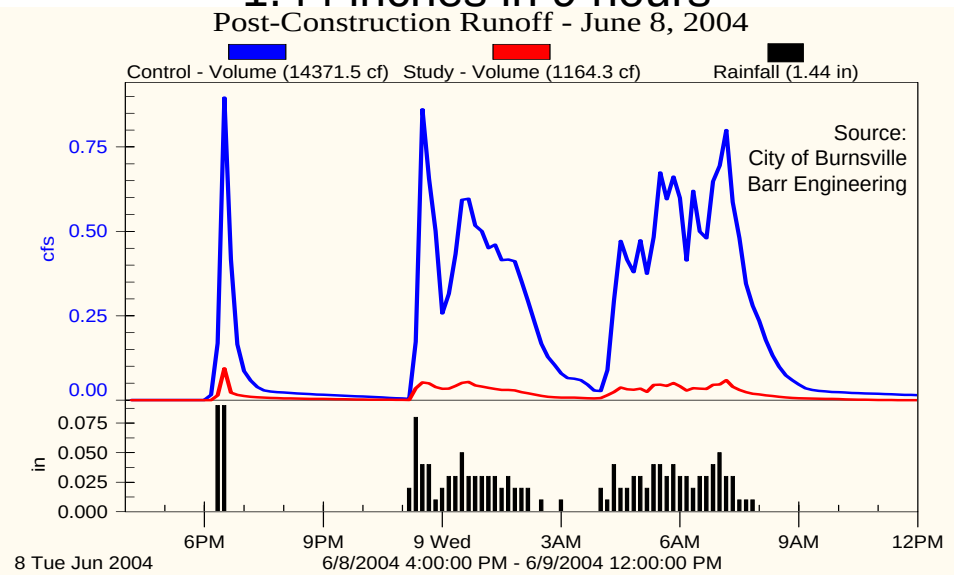

Before and After


Before and
After
Burnsville Raingardens
Designed by: Barr Engineering
8. 2. 2004


5.3 acres – 25 homes – 17 raingardens
Burnsville Raingardens
Designed by: Barr Engineering

# Post-Construction Runoff

## 1.44 inches in 9 hours




Burnsville Raingardens
by Barr Engineering
(Fred Rozumalkski, RLA)

Winter Infiltration of
Burnsville Raingardens

Public Works

City of Seattle
Street Reconstruction Project


1
2
3
4
5
6
Seattle


Street Reconstruction Project with
'Valley Curb' and Raingardens
Little Canada


Street Reconstruction Project with
'Valley Curb' and Raingardens
Little Canada


Inlet with Turfgrass Filter
Street Reconstruction Project with
'Valley Curb' and Raingardens
Little Canada

Street Reconstruction Project with
'Valley Curb' and Raingardens
Little Canada

Street Reconstruction Project with
'Valley Curb' and Raingardens
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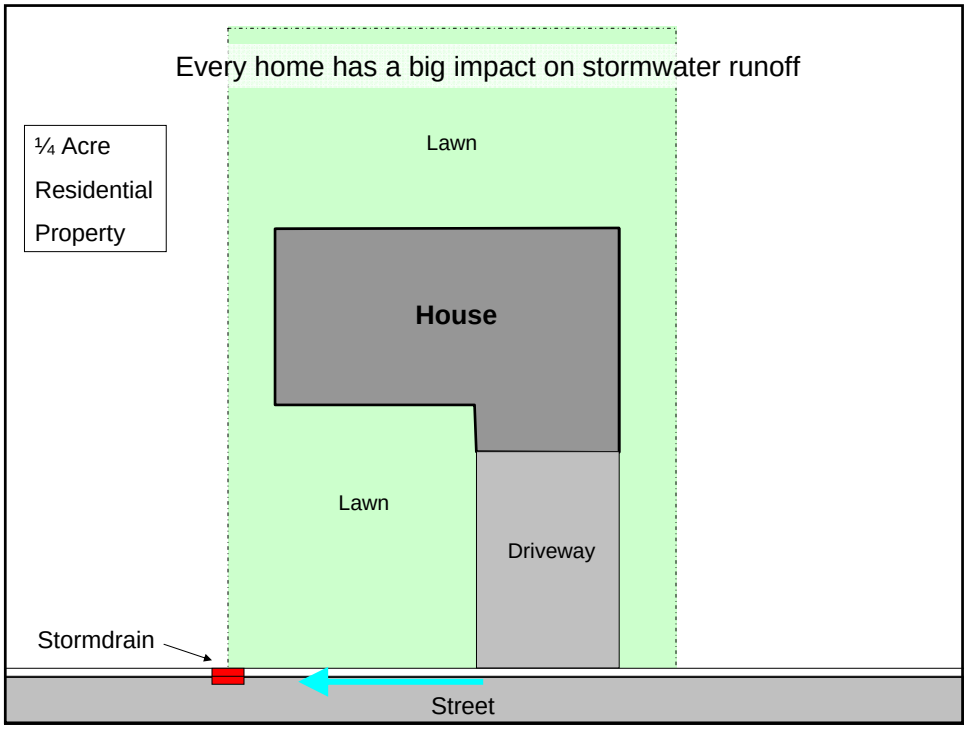
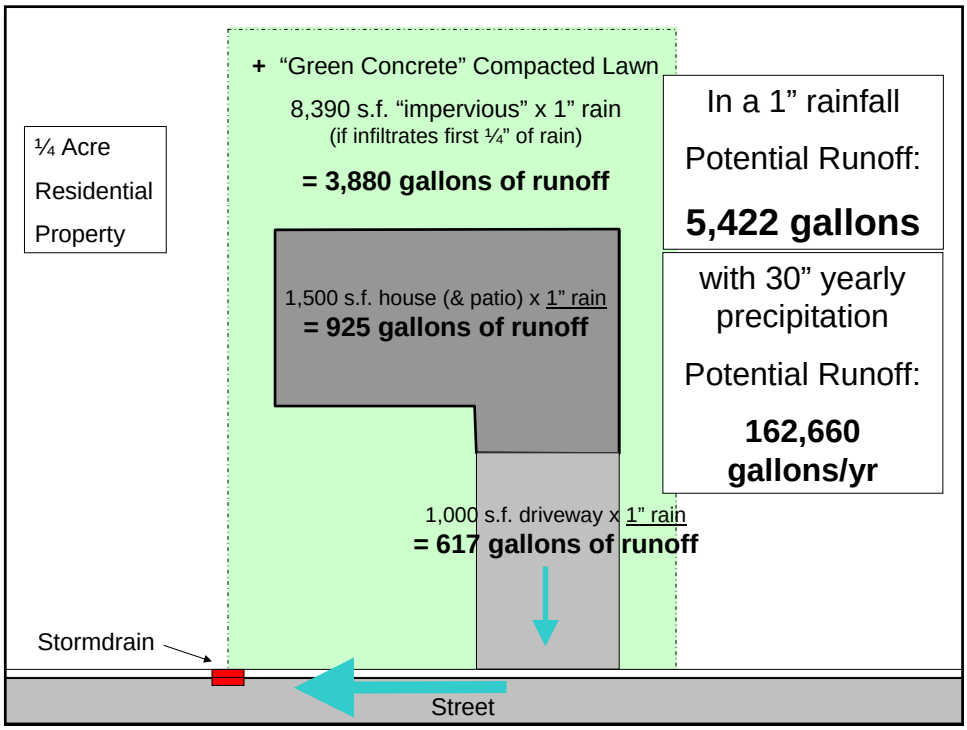
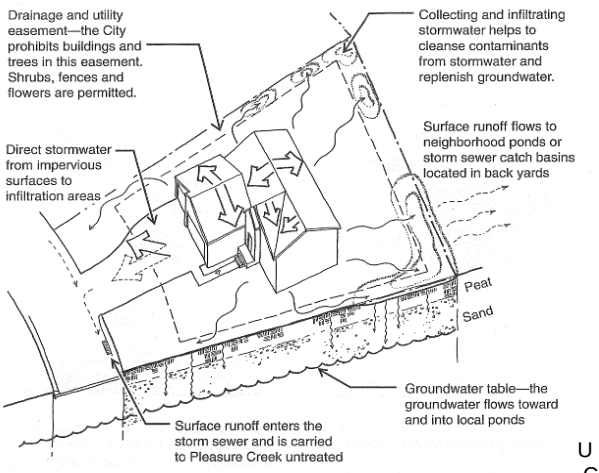

Every home has a big impact on stormwater runoff
¼ Acre
Residential
Property
Lawn
House
Lawn
Driveway
Stormdrain
Street


+ "Green Concrete" Compacted Lawn
8,390 s.f. "impervious" x 1" rain
(if infiltrates first ¼" of rain)
= 3,880 gallons of runoff
In a 1" rainfall
Potential Runoff:
5,422 gallons
¼ Acre
Residential
Property
1,500 s.f. house (& patio) x 1" rain
= 925 gallons of runoff
with 30" yearly precipitation
Potential Runoff:
162,660 gallons/yr
1,000 s.f. driveway x 1" rain
= 617 gallons of runoff
Stormdrain
Street

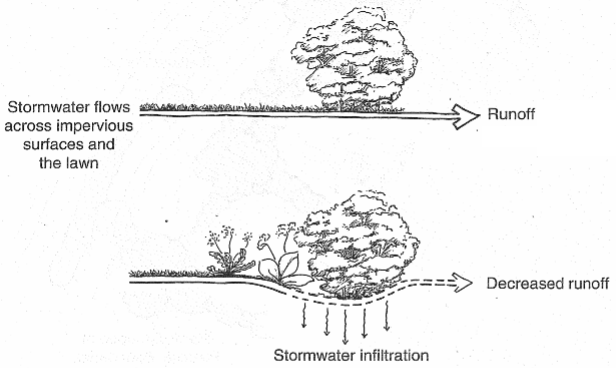
# Rainwater-Absorbing Landscaping




U of M CALA / City of Blaine

This diagram shows the movement of stormwater as it travels away from your house. Responsible stormwater management includes directing this water away from your house to ensure a dry basement yet allowing for infiltration within the yard. A good place to capture water is the "drainage and utility easement" at the edges of your property. Here water can be directed to the back and front of the lot and allowed to soak into the ground.

Raingardens can be simple depressions integrated into your landscaping.

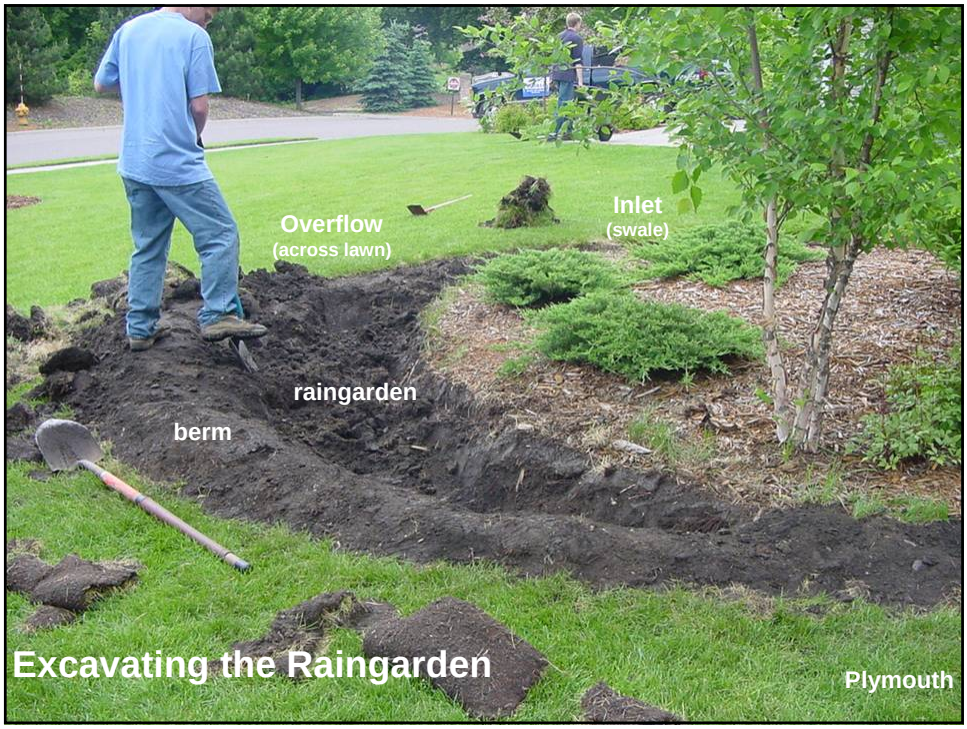



Small depressions created to collect stormwater can be planted with trees and shrubs. Plants such as red twigged dogwood, American hazelnut, and black chokeberry will benefit from the additional moisture.

U of M CALA / City of Blaine


300 gallons in
1” rainfall
Flows across lawn to
street s storm-drain
Plymouth


Outlining Raingarden Area
Plymouth

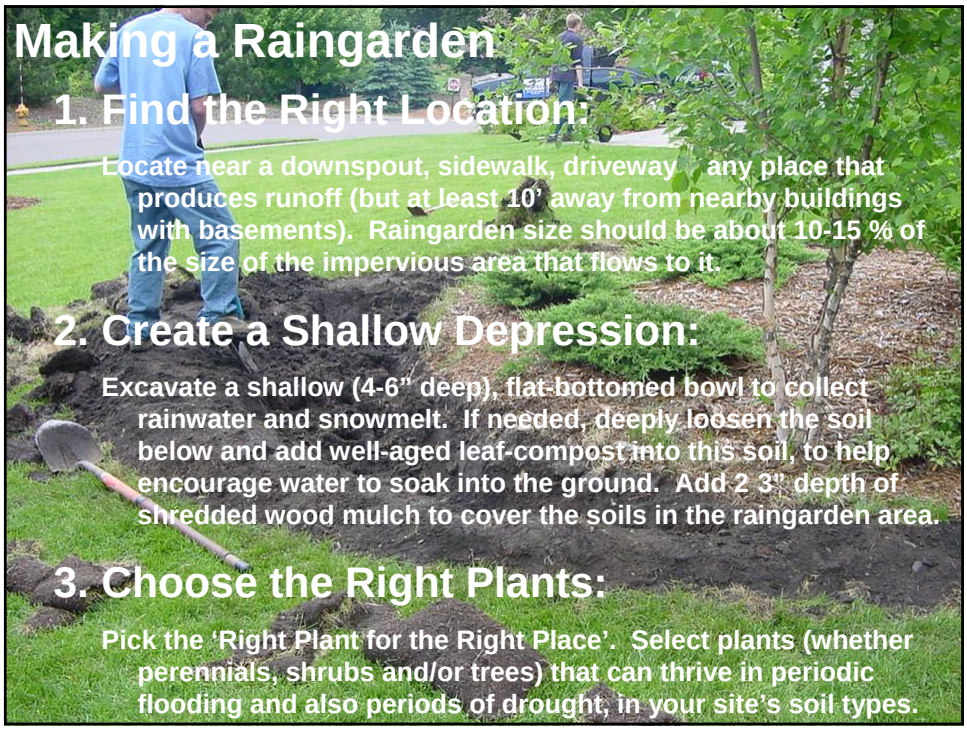

Overflow
(across lawn)
Inlet
(swale)
raingarden
berm
Excavating the Raingarden
Plymouth


Depression
(w/ compost)
Berm (w/ erosion-
control blanket)
Plymouth


Planting
Depression
Berm
Plymouth

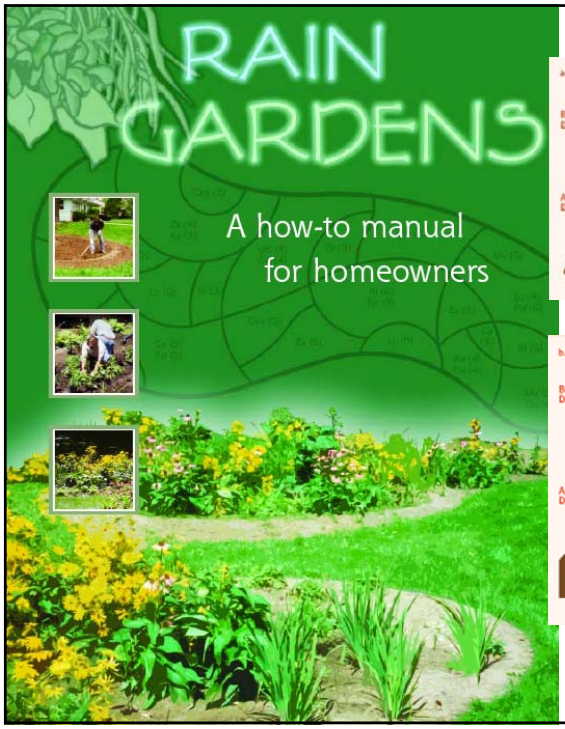

Year 1
Plymouth

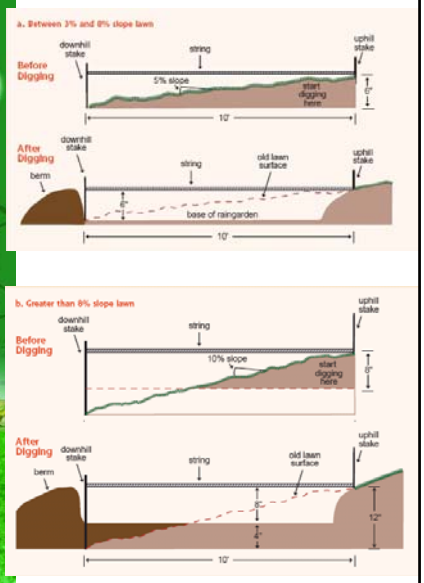

Blue Flag Iris
Pussytoes
Year 2


Making a Raingarden
1. Find the Right Location:
Locate near a downspout, sidewalk, driveway … any place that produces runoff (but at least 10' away from nearby buildings with basements). Raingarden size should be about 10-15 % of the size of the impervious area that flows to it.
2. Create a Shallow Depression:
Excavate a shallow (4-6" deep), flat-bottomed bowl to collect rainwater and snowmelt. If needed, deeply loosen the soil below and add well-aged leaf-compost into this soil, to help encourage water to soak into the ground. Add 2 3" depth of shredded wood mulch to cover the soils in the raingarden area.
3. Choose the Right Plants:
Pick the 'Right Plant for the Right Place'. Select plants (whether perennials, shrubs and/or trees) that can thrive in periodic flooding and also periods of drought, in your site's soil types.



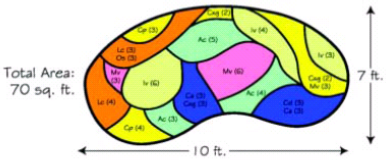
Educational Signage
Available from Gregg or Shawn
Created in Microsoft Publisher



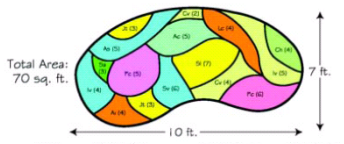

**Wisconsin DNR & UWEX**
**- Raingarden 'How-To' Manual**

10 feet wide; full to partial shade with clay soils




| Symbol | Species Name | Common Name | No. of Plants |
|---|---|---|---|
| Ac | Acorus calamus | Sweet flag | 12 |
| Ca | Campanula americana | Tall bellflower | 6 |
| Cp | Caltha palustris | Marsh marigold | 7 |
| Cxg | Carex Grayii | Bur sedge | 7 |
| Cxl | Carex lupulina | Hop sedge | 3 |
| Iv | Iris virginica-shrevei | Wild blue flag iris | 13 |
| Lc | Lobelia cardinalis | Cardinal flower | 7 |
| Mv | Mertensia virginica | Virginia bluebells | 12 |
| Os | Onoclea sensibilis | Sensitive fern | 3 |
| | | Total Plants Needed | 70 |

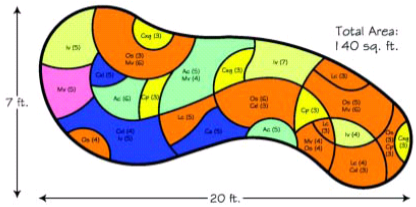
10 feet wide; full to partial sun with clay soils




| Symbol | Species Name | Common Name | No. of Plants |
|---|---|---|---|
| Ac | Acorus calamus | Sweet flag | 5 |
| As | Asclepias incarnata | Swamp milkweed | 4 |
| Ais | Alisma subcordatum | Water plantain | 5 |
| Ceh | Carex hystricina | Bottle brush sedge | 4 |
| Cav | Carex vulpinoidea | Fox sedge | 6 |
| Iv | Iris virginica-shrevei | Wild blue flag iris | 9 |
| Jt | Juncus torreyi | Torrey's rush | 6 |
| Lc | Lobelia cardinalis | Cardinal flower | 4 |
| Pc | Pontederia cordata | Pickerel weed | 11 |
| Si | Sagittaria latifolia | Arrowhead | 7 |
| Sa | Scirpus atrovirens | Green bulrush | 3 |
| Sv | Scirpus validus creber | Soft-stemmed bulrush | 6 |
| | | Total Plants needed | 70 |

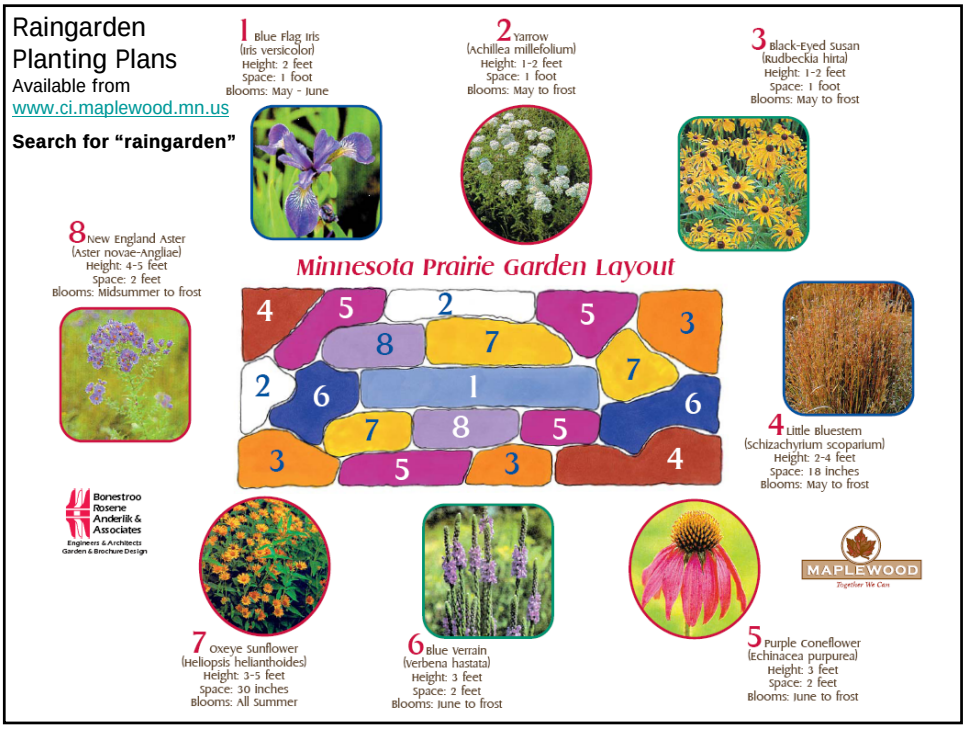
**Wisconsin DNR & UWEX**
**- Raingarden 'How-To' Manual**

20 feet wide; full to partial shade with clay soils

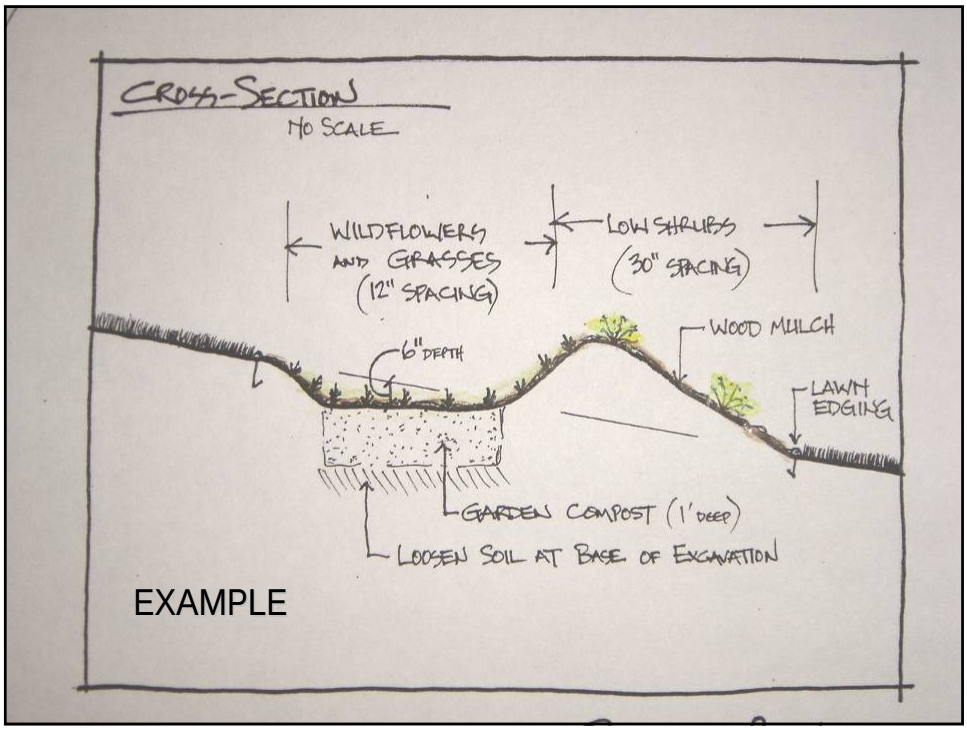


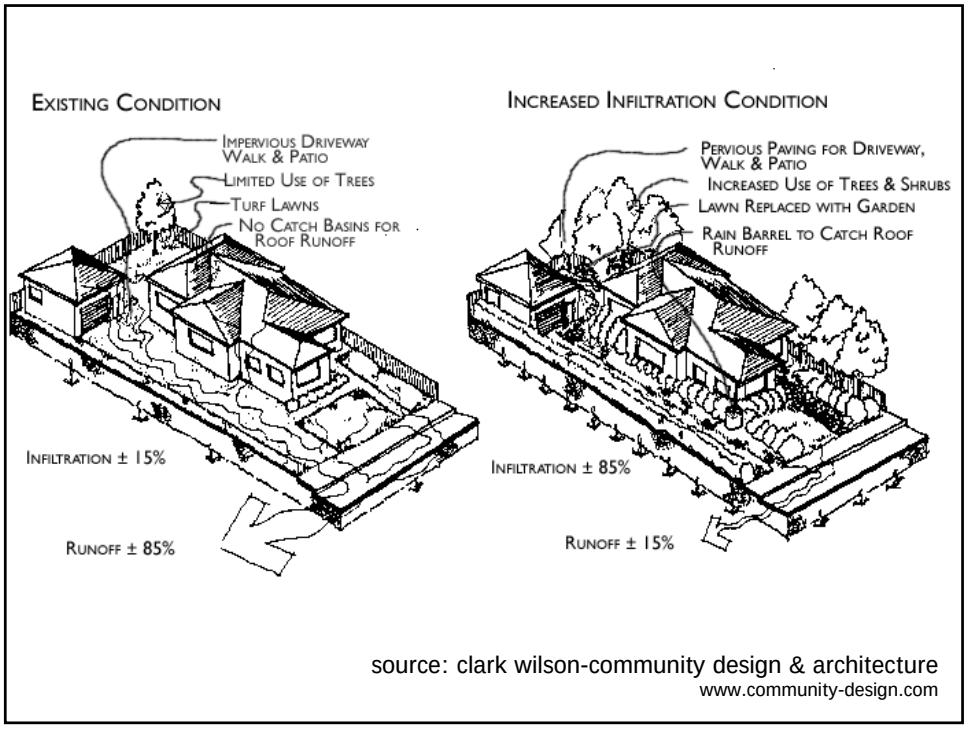

| Symbol | Species Name | Common Name | No. of Plants |
|---|---|---|---|
| Ac | Acorus calamus | Sweet flag | 16 |
| Cp | Caltha palustris | Marsh marigold | 9 |
| Ca | Campanula americana | Tall bellflower | 5 |
| Cxg | Carex Grayii | Bur sedge | 9 |
| Cxl | Carex lupulina | Hop sedge | 15 |
| Iv | Iris virginica-shrevei | Wild blue flag iris | 21 |
| Lc | Lobelia cardinalis | Cardinal flower | 15 |
| Mv | Mertensia virginica | Virginia bluebells | 25 |
| Os | Onoclea sensibilis | Sensitive fern | 25 |
| | | Total Plants Needed | 140 |


Plant Supplier / Consultant:
Natural Shore Technologies

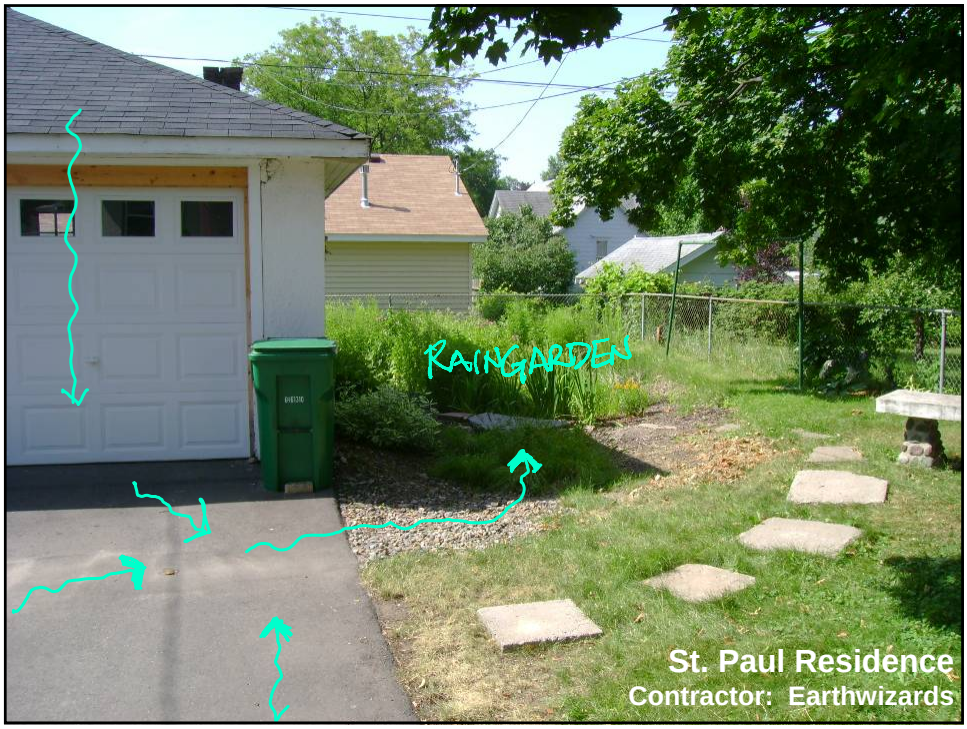


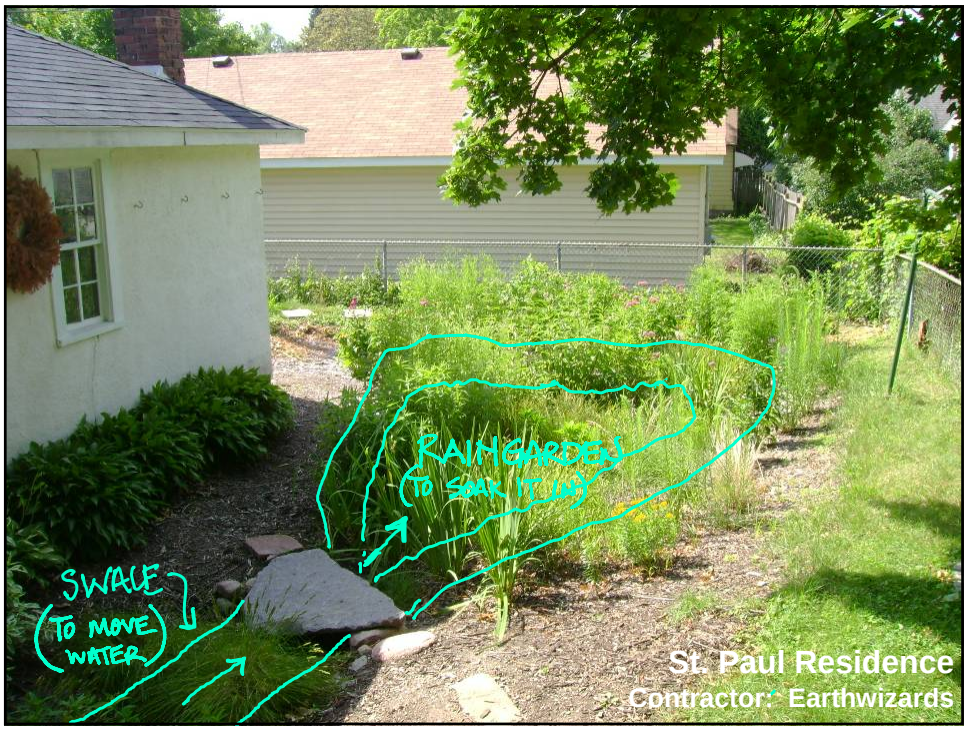

2701
City of Maplewood
Public Works Street Reconstruction Project


CROSS-SECTION
NO SCALE
WILDFLOWERS AND GRASSES (12" SPACING)
LOW SHRUBS (30" SPACING)
WOOD MULCH
6" DEPTH
LAWN EDGING
GARDEN COMPOST (1' DEEP)
LOOSEN SOIL AT BASE OF EXCAVATION
EXAMPLE




source: clark wilson-community design & architecture
www.community-design.com

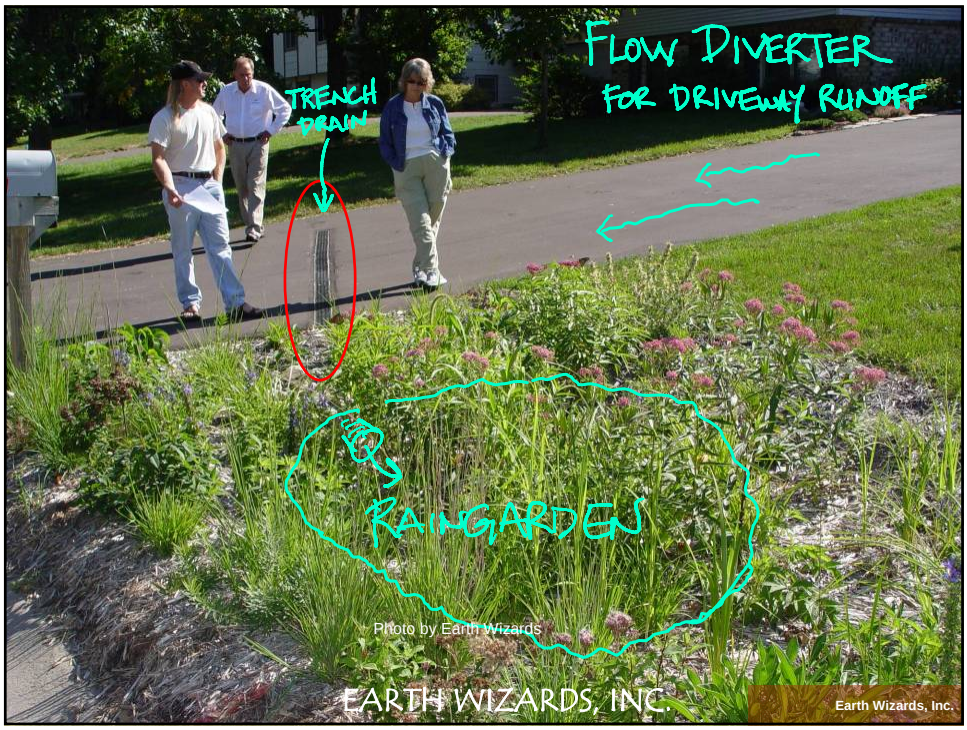

RAINGARDEN
St. Paul Residence
Contractor: Earthwizards


RAINGARDEN
TO SOAK IT IN
SWALE
TO MOVE
WATER
St. Paul Residence
Contractor: Earthwizards


Lake Independence Residence
Contractor: Earth Wizards


Lake Independence Residence
Wizards


Inlet
Overflow
After Construction
(but before Planting)
Lake Independence Residence
Contractor: Earth Wizards


FLOW DIVERTER
FOR DRIVEWAY RUNOFF
TRENCH DRAIN
RAINGARDEN
Photo by Earth Wizards
EARTH WIZARDS, INC.
Earth Wizards, Inc.